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Meditations on Meyer's Hobby Horses:  
Levels of Motivation in Musical Signs

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One of the quirks of the history of music theory is that developments in our understanding of sound perception frequently ride on the back of prior discoveries in the realm of vision. The ear borrows from the eye. A historical sketch, working backwards, would begin with the influence of David Marr's work on connectionist models of visual perception upon music theorists such as Jamshed Bharucha and Robert O. Gjerdingen. Moving to the mid-century, the impact of Gestalt psychology can be traced not only to the theories of Leonard Meyer, but also to Lehrdal and Jackendoff's generative model of tonal structure. Earlier still, it is a fact that Helmholtz's epoch-making *On the Sensations of Tone* was consequent upon his research on the physiology of the eye. The priority of vision over sight is even evident at the dawn of music psychology, in the pedagogical theories of A.B. Marx. Marx's compositional treatise, *Die Lehre von der Musikalische Komposition* (1837) applies lessons learnt from an earlier tradition of drawing manuals. The Swiss pedagogue Johann Pestalozzi's *A B C der Anschauung* (1803) instructed children in how to see more clearly by teaching them to draw prime geometric forms, such as squares, lines and arcs. By internalizing visual schemata, children learnt to perceive an order in the world. A student in Marx's school would internalise analogous musical schemata, namely the *Satz*, *Gang*, and *Periode*.

With Pestalozzi and Marx's theories of perceptual schemata, the circle of influence takes us back to the twentieth century, and two seminal books from the 1950's. Ernst Gombrich's *Art and Illusion* of 1959 revolu-

tionized studies in the history of art by demonstrating that pictorial representation relied as much on manipulation of stereotypical patterns and frameworks as on a supposedly “veridical” mimesis of reality. Leonard B. Meyer’s *Emotion and Meaning in Music* (1956) cast an exactly parallel influence on the analysis of musical style. Meyer argued that musical meaning is emergent from the arousal, inhibition and confirmation of expectations created by stylistic patterns. Just as Gombrich’s study marked the first mainstream assimilation of the psychology of visual perception into iconography (Gombrich cites scientists such as J.J. Gibson), Meyer’s work formed the first comprehensive engagement between music analysis and the perceptual principles of the Gestalt school. *Emotion and Meaning in Music* signalled the start of a long and illustrious project, of which the rigorous *Explaining Music* (1973) and the monumental *Style and Music* (1989) have so far proved to be the pinnacles. Despite their shared concerns, the analogy between Gombrich and Meyer is not synchronous. Art and Illusion turned out to be Gombrich’s magnum opus, and the critic has failed to build a serious theoretical method upon the work’s many aperçus. By contrast, Meyer’s best work lay in the future. *Explaining Music*, together with a handful of major articles such as “Grammatical Simplicity and Relational Richness” (1975), and “Exploiting Limits” (1980), revealed a much greater gift for systematic theorising. It is my contention, however, that the affinity between the two thinkers has become closer over the years; that Meyer’s theory, which originally focused on issues of meaning, has now turned its spotlight onto issues of representation.

Meyer’s recent work has dwelt on distinctions between “natural” and “conventional” signs. In semiotic terms, his writings engage with the degree to which stylistic tokens can be said to be “motivated”, or even “iconic” (as opposed, in the Peircian sense, to “symbolic”). In this respect, music analysis has only just caught up, at a distance of a quarter of a century, with art criticism. This time-lapse conforms to the historical pattern I sketched at the start of this essay. I will argue, moreover, that if we view Meyer’s mature theory as a delayed convergence with the problematic of pictorial representation, then we will gain fresh insights into semiotic, even mimetic, dimensions of musical processes. Starting with a brief review of Gombrich’s celebrated article, “Meditations on a Hobby Horse,” I will track the evolution of Meyer’s ideas as they ride, as it were, on the horse’s back.

The subject of Gombrich’s article is a very ordinary hobby horse. “It is satisfied with its broomstick body and its crudely carved head” (p.1). Gombrich wonders how we should address it. “Should we describe it as

an ‘image of a horse?’” Is it rather “a portrayal of a horse,” or even “a substitute for a horse”? Gombrich opts for the latter. The stick is neither a sign signifying the concept “horse,” nor does it represent or refer to any aspects of real horses. It is “horselike” only because it can be ridden by a child. The implications for art criticism and semiotics are profound: the *tertium comparationis* of a symbol and its object is not external form but function. “We may sum up the moral of this “Just So Story” by saying that substitution may precede portrayal and creation communication” (5). Objects with functional utility or biological relevance become invested with significative value. “The greater the biological relevance an object has for us the more will we be attuned to its recognition – and the more tolerant will therefore be our standards of formal correspondence” (6-7). Objects rooted in deep-seated biological or psychological principles thus behave like “attractors” to processes of signification. The upshot of Gombrich’s argument is that the distinction between nature and convention is simply a matter of degree, not kind. In the words of W.J.T. Mitchell, it is “the difference between conventions that are abiding, deep, and widespread, and conventions that are relatively arbitrary, changeable, and superficial” (1986: 76). In semiotic terms, Gombrich’s essay suggests that the Peircian “icon”/“symbol” distinction can be replaced with a gradient of iconicity; an ascending scale of motivation. On one level, of course, Gombrich’s ideas are not especially new. The processes of “stylisation” and “ritualization” are staples of anthropology, and have become central to the emerging field of bio-semiotics. According to Irenäus Eibl-Eibesfeldt:

During the process of stylisation, schematization takes place: Certain features of the objects become emphasised, and less important characteristics are left out. Thus, by gradual abstraction, an object may even change into a sign. The process in many ways resembles the ritualization of behaviour, by which animal and human behaviour patterns change into signals through phylogenetic and cultural evolution (Rentschler, 1992).

On a different level, however, Gombrich’s persuasive application of phylogenetic principles to the realm of high art marks a unique achievement. It can only be regarded as the model for the “bio-semiotic” *tinta* of Meyer’s *Style and Music*:

Other things being equal, innovations that are consonant with human perceptual and cognitive capacities – the constraints of the central nervous system

– are more likely to be used and replicated than innovations that are not so. For instance, novelties are more likely to be selected and replicated if they do not involve stimuli so extreme... that perception is painful or patterning problematic. Equally important, selection and replication are more likely if innovations conform to the Gestalt principles of pattern comprehension... In short, innovations that are compatible with the constraints and proclivities of human perceptual and cognitive processes will tend to be comprehended as coherent, stable, and memorable relationships. As such, they have a reasonable chance of being replicated as aspects of the idiom of a composer or as part of the dialect of the compositional community (140).

Right from the start, Meyer's writings sought to ground style analysis in "the nature of human mental processes" as well as "expectations that are based upon learning" (1956: 43). Nevertheless, while *Emotion and Meaning in Music* always avowed the mutual efficacy of innate and learnt perceptual principles, little attempt was made to discriminate or grade them. Furthermore, the differential weighting of Gestalt and cultural factors played no part in the analysis of pieces or the classification of musical materials. Differential weighting and classification constituted the most vital contribution of *Explaining Music*. The heart of the book (chapter 7, 131-241) is a catalogue of six diverse "melodic structures," each of which intermingled natural and learned principles in a different way. Underlying Meyer's survey is a broad dichotomy between "gap-fill" melodies and "archetypal schemata." "Gap-fill melodies consist of two elements: a disjunct interval – the gap – and conjunct intervals which fill the gap" (145). The implicative properties of gaps are innate, universal, and stable through time: they are "natural." By contrast, archetypal schemata, even though they arise out of and enshrine psychological constants, result through learning and require knowledge in order to be understood. One of the most common of Meyer's schemata is the "changing-note" pattern. These circle a single note, and "involve motion away from and back to stability" (191). The largest study of the changing-note schema was completed by a disciple of Meyer, the theorist Robert O. Gjerdingen, in his book *A Classic Turn of Phrase* (1988). While gap-fill melodies are prevalent across the entire world and in every historical period, Gjerdingen's "1-7 4-3" schema was prototypical of a localised musical repertory (the European galant) and a narrow historical time-band (*circa* 1770).

That gap-fill melodies and changing-note schemata are perceived differently was confirmed by an experimental study Meyer undertook together with Burton S. Rosner (1986). More ambitiously, Meyer's latest book, *Style and Music* (1989) projected the gap-fill schema distinction onto an historical narrative. In brief, Meyer conceives of music history, the

shift from the Classical style to Romanticism and then to the modern age, as a retreat from Culture towards Nature. If the changing-note schema epitomised the rule-governed, learned and conventional aspects of classicism, then the Romantics' "repudiation of convention" (164) was rejected in the increased importance "of secondary parameters in shaping musical process and structure" (208). Secondary, statistical parameters, such as texture, density, dynamics and timbre, "seem able to shape experience with minimal dependence on learned rules and conventions" (218). "For many listeners, the power of sheer sound – as music slowly swelled in waves of sonic intensity, culminating in a statistical climax or a plateau of apotheosis – in a very real sense shaped experience 'naturally'" (218). If changing-note melodies are characteristic of eighteenth-century music, than the values of 19th-century music were typified by "axial" schemata. Axial patterns are subject to the natural psychological satisfaction of return. They are, furthermore, "consonant with values of Romanticism such as openness, reliance on natural rather than learned means, and appeal to less sophisticated members of the elite egalitarian audience" (242).

Perhaps the most suggestive element of Meyer's late theory is the fashioning of a nature/convention continuum in terms of music theory. As we have seen, the appraisal of signs according to their level of utilitarian or biological motivation is a practice associated with the visual arts. The originality of Gombrich's version of mimesis is that it concerns not the relation of the sign to its referent, but rather, at a much higher level, the relation between the signification process and the invariant principles of perception and of learning. Meyer's theory would therefore seem to point to the possibility of a "painterly" music theory, an analytical discourse finally able to represent musical structure in relation to the world. Nevertheless, even by the standards of his most rigorous work, the earlier *Explaining Music*, Meyer's *Style and Music* is methodologically incomplete. For example, the "convention" side of his nature/convention dichotomy is analytically extremely limited. On the natural side, Meyer has had no trouble in graphing entire movements in terms of gap-fill (Gestalt) principles. By contrast, Meyer's classification of melodic schemata has only been applied to short phrases, and we still await our first movement-length schematic analysis. What might a "musical iconography" of nineteenth-century music look like? I will close with some suggestions.

A favourite trope of the Romantic composer is the "journey into Nature." Wagner's Siegfried affords perhaps the prototypical example. Act I is dominated by schematic song-forms. These will be broken and melted down, like the very fragments of the hero's sword, in the opera's

famous Forest Murmurs. Dahlhaus terms such statistical sound-effects “*Klangflache*,” “outwardly static, but inwardly in constant motion” (1989: 307). The *Klangflache* “conveys a landscape because it is exempted from the principles of teleological progression”; i.e., it provides release from the syntactic “scripts” of rule-governed composition. The listener’s fancy roams free, subject only to the default principles of Gestalt patterns. Over the course of the first two acts, the musical materials have drifted from the schematic end of the spectrum to the natural. Crucially, Wagner has “thematized” this drift in the very fabric of his drama. Not wishing to claim priority for either side of Wagner’s music/drama dialectic, it is perhaps best to point simply to the perfect “fit” between the *Idee* and the material. Of course, the intermingling of “learned” and “natural” principles is infinitely rich and multi-levelled in Wagner’s score. Meyer’s tools, however, have the potential for tracking the landscape painting with a new type of musical iconography.

In conclusion, it is worth pointing out that Meyer’s schema/Gestalt dichotomy follows in the wake of many other oppositions in cognitive science and semiotics. Meyer has himself compared it (after Gjerdingen) to Schank and Abelson’s distinction between “scripts” and “plans” (1989: 245). Syntactic relationships and the schemata associated with them are script-like (“A script is a structure... made up of slots and requirements about what can fill those slots”). Plans are repositories “for general information that will connect events that cannot be connected by use of an available script or by a standard causal chain expansion” (245); gap-fill and axial melodies are plan-like patterns “that provide for general kinds of relationships, such as ‘move around (above and below) some central tone, and then return to it’.” Meyer might also have referred to Nelson Goodman’s (1976) nominalist classification of sign-types. For Goodman, generic differences between signs pertain not to levels of resemblance but rather to their internal structure. Schemata would correspond to Goodman’s digital signs, being differentiated and articulated. Gap-fills accord with analogue signs, which are non-articulated and dense.

But Meyer’s semiotics remains profoundly anti-nominalist on account of the synergy between the dynamics of the referent, music as sounding motion, and the dynamics of perception. In the final analysis, what links music to the world is the pervasiveness of biological and psychological principles. This “realist” aspect of Meyer’s thinking has remained constant over the years. If anything, it has got stronger. It would not be too fanciful to interpret this late realist turn as a rapprochement with the same Gibsonian ecological approach to perception that had inspired

Gombrich nearly forty years previously. The musical landscape affords particular materials which shape themselves around its contours, just as the child presses his body against the wooden stick which is his hobby horse. The affordance of a surface or object in the environment is what it offers the animal; whether it can be grasped or eaten, trodden or sat upon; whether it has been designed around our perceptual mechanisms, or if it rubs against our grain. More radically, Meyer may be said to have rediscovered the realism implicit in the Gestalt school's original theories, in particular Koffka's idea of the "demand character" of an object: "To primitive man each thing says what it is and what he ought to do with it... a fruit says 'Eat me;' water says 'Drink me;' thunder says 'Fear me'" (1935: 7).

The approach of distant thunder had always been Meyer's prototypical example of tension leading to release:

The low, foreboding rumble of distant thunder on an oppressive summer afternoon, its growing intensity as it approaches, the crescendo of the gradually rising wind, the ominous darkening of the sky, all give rise to an emotional experience in which expectation is fraught with powerful uncertainty (1956: 28).

In Meyer's original theory, the approaching storm only signified on a formal level, as a confirmation of a syntactic implication. The "demand character" of the thunder, its affording of value, was an element of which early Meyer was hardly cognisant. Nevertheless, with every passing year, the "demand character" of the musical material has lowered ever more portentously in Meyer's skies. And now, as we await fulfilment of the theory, whether it fall to Meyer or to one of his disciples, we can assert with a growing sense of expectancy that the ear is on the verge of seeing.



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